

G-39-6G2  
#1

## Year-End Report

### Implementation of 6<sup>th</sup> Grade Mathematics GPS in Paulding County

PeopleSoft Project Number: 39066G2  
Project Number: G-39-6G2  
Document Id: 101837  
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**Overview:** In the spring of 2005, Paulding County Schools applied for a grant under the Math Science Partnership (MSP) identifying Georgia Tech Center for Education Integrating Science, Math and Computing (CEISMC) and Kennesaw State University as partners. This report addresses the efforts undertaken by CEISMC.

From August 2005 through May 2006, CEISMC provided support for sixth grade mathematics teachers implementing the Georgia Performance Standards (GPS) in Paulding County's six middle schools. This support revolved around CEISMC's creation and facilitation of Professional Learning Communities (PLC) in which sixth grade math teachers were engaged in discussion, development, implementation, and assessment of new curricular content and instructional activities related to the GPS.

In addition, resources were identified or created for district and state use. These resources included unit pre/post test, parent newsletters, unit concept posters, outlines of suggested lessons by unit, and a benchmark assessment tool. (Samples of these resources are attached as Appendix 1.) In April and May, CEISMC designed, administered, and compiled a survey to assess the professional learning of the teachers involved in the project. (Results of the survey are attached as Appendix 2.)

**Weekly Meetings of the PLC's:** Each week, Marsha Shrago, Program Director for CEISMC, met, school by school, with the sixth grade math teachers during their common planning time. (Building principals arranged for the common planning times.) Working collaboratively during these 1 – 2 hour sessions, Ms Shrago and the teachers accomplished the following tasks:

- Review of and reflection on current practice in the classroom to identify how teaching affects the learning of their students.
- Review of content and learning new topics, terms, and techniques in mathematics
- Sharing and practicing student-centered activities that promote active learning, especially student discourse, written communication, collaborative investigations, and multiple representations as recommended in the GPS.

- Development of lesson plans with specific strategies for differentiation including ways to use scaffolding (questioning, cueing, prompting) techniques.
- Identification of non-instructional concerns (classroom management, use of time, physical setting) which are negatively impacting learning and determination of appropriate personnel to address these concerns.
- Exchange of web sites, texts, manipulatives, literature, and other standards-based resources.
- Demonstration of effective oral and written feedback on student work.
- Recognition of opportunities to use technology and manipulatives in the classroom and practice using these tools.

**Results:** The impact of the 10 month effort may be observed in three areas:

1. Growth in teacher content and pedagogical knowledge. (Unfortunately, we cannot measure the growth in their application and performance of such knowledge.)
2. Student learning as assessed by the sixth grade Criterion Referenced Competency Test (CRCT).
3. Products that have been shown beneficial and adopted by other district and/or recognized by the State Department of Education.

**--Teacher Growth.** Gwen Wood, Paulding County Math Supervisor organized a focus group of the Paulding County sixth grade math teachers. Tom McKlin, PhD. met with the focus group to determine what benefit teachers recognized in the weekly meetings of their professional learning communities. Dr. McKlin reported, "The teachers participating in the focus group indicate that Marsha was valuable in transitioning them from Saxon math to the GPS curriculum and that she provided needed scaffolding and just-in-time support. Pedagogically, teachers commented that they prepare for their classes, motivate students and occasionally sequence their instruction differently as a result of the MSP interventions. The teachers mentioned that they are not certain that student achievement has improved as a result of the interventions because the sixth grade math CRCT scores have not been returned. However, they note a number of leading indicators that lead them to believe student achievement has improved: increased student motivation, a higher level of student engagement, peer collaboration, and school-to-school consistency. The teacher also expressed concern that students continue to struggle."

Dr. McKlin also provided an electronic survey for the teachers. About half of the teachers in the project responded. The results, as displayed in Appendix 2, indicated that teachers overwhelmingly felt involved in unpacking the new standards, sharing lesson plans, classroom activities, and examples of student work, practicing new content and new instructional strategies, and celebrating success. They did not observe other classrooms.

Although the teachers did not take a pretest, they did participate in a posttest activity in June. At each school, the Instructional Lead Teacher administered the middle school version of the Learning Mathematics for Teaching (LMT). This assessment has not been scored at this time.

**--Student Learning.** Statewide, sixth grade students did not perform as well on the CRCT in spring 2006 as they did in spring 2005. However, the 2006 test was the first State math test based on the recently-adopted Georgia Performance Standards. Throughout Georgia 62% of sixth graders met or exceeded standards. In Paulding County, 68% (599/1865) of sixth graders met or exceeded standards. The results by school are as follows:

Moses--78% (87/395)	East Paulding--71% (98/339)
Dobbins--70% (63/213)	South Paulding--65% (85/245)
Austin--64% (128/351)	Herschel Jones--57% (138/322)

Thus, while Paulding County Schools exceeded the State level of performance, there is still much room for improvement.

An analysis of schools with similar demographics (percentage of students eligible for free and reduced lunch, percentage of students with English Language Proficiency, highest ethnic percentages, and second highest ethnic percentages) reveals that the met/ exceeded standards rates in Paulding Middle Schools were comparable to those of similar schools, but none of the schools had the top or even second to the top rate within its class. The comparisons are as follows:

Dobbins 70.4%

Luella MS (Henry Cnty) 63.3%  
 Bonaire MS (Houston Cnty) 77%  
 Dacula MS (Gwinnett Cnty) 82%  
 Ware Magnet (Ware Cnty) 66.7%  
 Blackmon Rd. MS (Muscogee Cnty) 72%

East 71.1%

Jefferson MS (Jefferson City) 83.1%  
 Columbia MS (Columbia Cnty) 71.2%  
 South MS (Paulding Cnty) 65.3%  
 East Coweta (Coweta Cnty) 55.7%  
 Ebenezer MS (Effingham Cnty) 78.2%

Jones 57.1%

Taylor St MS (Spaulding Cnty) 61.1%  
 Bay Springs MS (Carroll Cnty) 56.1%  
 Bryon MS (Peach Cnty) 71.8%  
 Hart County MS (Hart Cnty) 73.1%  
 Oglethorpe Cnty MS (Oglethorpe) 73.7%

Moses 78%

Liberty MS (Forsyth Cnty) 83.6%  
 Creekland MS (Cherokee Cnty) 74.5%  
 Malcolm Bridge (Oconee Cnty) 89.6%  
 Sewell MS (Bremen City) 78.7%  
 Vickery Creek (Forsyth Cnty) 81%

South 65.3%

East Coweta (Coweta Cnty) 55.7%  
 East MS (Paulding Cnty) 71.1%  
 Youth MS (Walton Cnty) 75.4%  
 Lee County MS (Lee Cnty) 79.1%  
 Lakeside MS (Columbia Cnty) 77%

Austin 64%

2005-2006 was the first year of operation for Austin MS. Consequently, the School Council Institute has not compiled a profile with which to make comparisons.

**--Products.** As mentioned earlier, several items were developed for use in the classroom and as communications with parents and community. Samples of the items are included in Appendix 1. The parent news letters (requested and edited by Gwen Wood, Paulding County Math Supervisor) have been recognized by the Georgia Department of Education and modified to serve as generic models. These letters have been posted at [Georgiastandards.org](http://Georgiastandards.org) and are being translated into Spanish as requested by other school districts. All of the classroom tests and lesson materials have been shared with districts across the state through the Georgia Council of Supervisors of Mathematics. The concept maps have been enlarged and printed as posters for sixth grade classrooms.

**Recommendations:** From Dr. McKlin's discussion with the focus group, we have the following recommendations:

- Foster vertical collaboration among sixth and seventh grade teachers.
- Sustain a high level of collaboration and teacher-teacher accountability among sixth grade teachers next year.
- Continue the spirit of professional learning. I infer from the comments that sixth grade teachers are comfortable using concept maps, but they may need more practice developing them. Other teachers will begin using concept maps. Two levels of professional learning are recommended: 1) Offer sixth grade teachers an opportunity to improve their ability to unpack standards by developing concept maps with peers. 2) Use sixth grade teachers to provide professional learning to other grade-level teachers on using concept maps.
- Continue conversations among sixth grade teachers on strategies to reach struggling students with a focus on putting structures in place to assist these students.

Based on the survey of teachers, we recommend:

- Arrangements be made to allow sixth grade teachers to observe standards-based teaching in other classrooms.

Student CRCT results suggest:

- Additional professional learning is needed especially in those schools where less than 70% of students failed to meet or exceed standards. This learning might start with analysis of the data from the CRCT disaggregated by mathematical strand and by student demographics.
- Administrative action is needed to provide opportunities for those students not meeting standards for sixth grade to receive instruction that will accelerate their learning. Efforts must be made to significantly reduce the number of students not meeting standards.
- Consultation with schools that have similar demographics but better CRCT performance could reveal different worthwhile approaches.

## Appendix 1

### Samples of Products

1. Unit Pre/posttests
2. Unit Concept Maps
3. Parent Newsletters
4. Suggested Outline of Lessons
5. Links

Gathering and Using Data

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**PLEASE DO NOT WRITE ON THIS PAPER. Record your answers on the ANSWER SHEET as directed by your teacher.**

1. Jenny surveyed the students at her school about their favorite season. The table below shows the results of the survey.

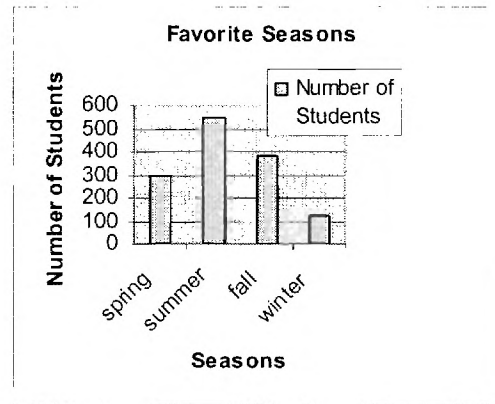
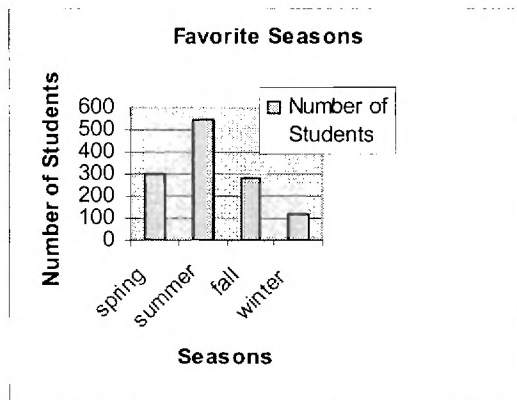
**Favorite Seasons**

Season	Number of students
Spring	300
Summer	550
Fall	380
Winter	120

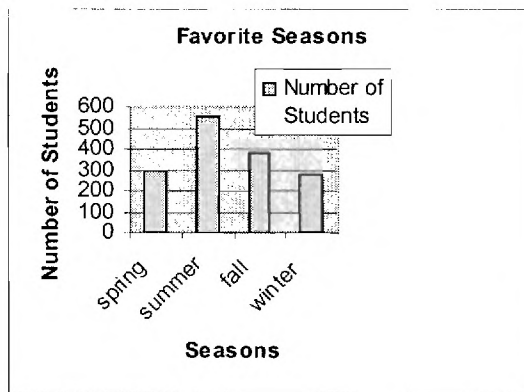
Which graph correctly displays the data in the table?

A

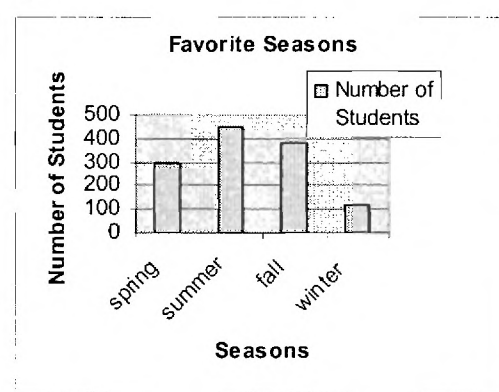
B



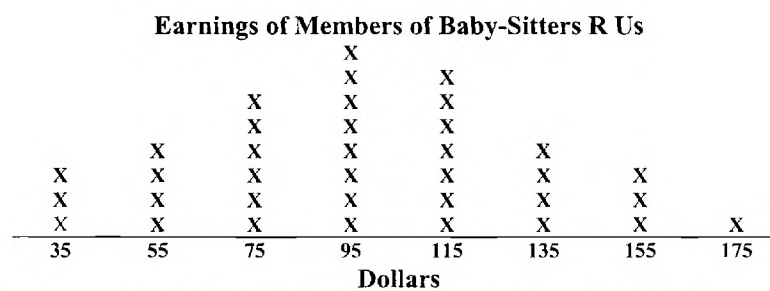
C



D



2. The line plot shows the money earned last summer by members of Baby-sitters R Us.



Which statement is supported by the information in the line plot?

- The number of sitters who earned \$55 is the same as the number who earned \$155.
- Twenty-nine sitters earned \$75 or higher.
- The number of sitters who earned \$55 or less is the same as the number who earned \$135 or more.
- Five sitters earned less than \$50.

3. As Sixth Graders, you are new to middle school. You are probably making new friends. Below are some questions you could ask in a survey of your new friends to learn more about them. Write **N** for the question if it would produce numerical data. Write **C** for the question if it would produce categorical data.

- a. How many brothers and sisters do you have?
- b. What sports do you play?
- c. How much time do you spend on homework?
- d. Where did you go on vacation?
- e. What is your favorite TV show?

**Please use the following information for questions 4 – 5.**

A new electronics company did a market survey. The company asked, “How many of the following items do you have in your household: TV, DVD player, computer, CD player, video game (VG) player?” The company’s results look like this:

- none
- 2 TV and 1 DVD
- 2 TV, 1 computer, 2 CD
- 2 TV, 1 DVD, 1 computer, 2CD, 2 VG
- none
- 2 TV, 2 computer, 2 CD, 1 DVD, 1 VG
- 3 TV, 3 VG, 1 computer
- 3 TV, 2DVD, 3CD, 2VG, 1 computer
- 4 TV, 1 DVD, 1VG, 4CD, 2 computers

4. The table below attempts to summarize the results of the survey.

Type of device	Number of households
TV	16
DVD player	5
Computer	6
CD player	11
VG player	8

What is wrong with this table?

- A. The number of TV’s is too high.
  - B. The number of computers is too low.
  - C. The table does not include radios.
  - D. The table does not include households without any of the devices.
5. How many electronic devices (of the type listed) does the typical household have?
- A. 7 because that is the mean.
  - B. 7 because that is the median.
  - C. 7 because that is the mode.



D. 16 because that is the mode.

**Please use the following information for questions 6 – 8.**

Below are stem and leaf plots of the final grades for Mr. Goodson's class and for Ms. Watson's class.

**Mr. Goodson**

6	8,8,9
7	2,2,3,4,4
8	0,0,1
9	5,5,5,6,6,7,7,8,8

**Ms. Watson**

7	5,5,6,9
8	0,1,3,3,4,4,5,6,6,7,7,8,8
9	0,1,2

6. In which class are the grades more consistent?
- Mr. Goodson's, because the range is 30.
  - Mr. Goodson's, because the range is 17.
  - Ms. Watson's, because the range is 30.
  - Ms. Watson's, because the range is 17.

7. Which class had the higher mean?
- Mr. Goodson's
  - Ms. Watson's
  - The means are the same.

8. Which class had the higher median?
- Mr. Goodson's
  - Ms. Watson's
  - The medians are the same.

9. Determine the best type of graph to display each of the sets of data below.  
Write **B** for bar graph, **C** for circle graph, **H** for histogram, or **L** for line graph.

a.

Time of Day	8am	10am	12	2pm	4pm	6pm	8pm
Patient's temperature	98	98.2	98.4	98.6	98.6	98.8	99

b.

Type of expenses	Video games	Snacks	Movies	Hobby	Tickets to events	Supplies	Gifts
Percent of allowance	15%	25%	10%	20%	10%	5%	15%

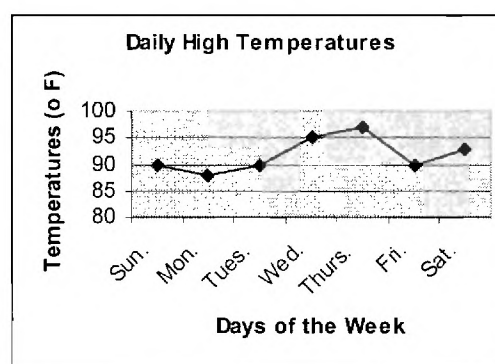
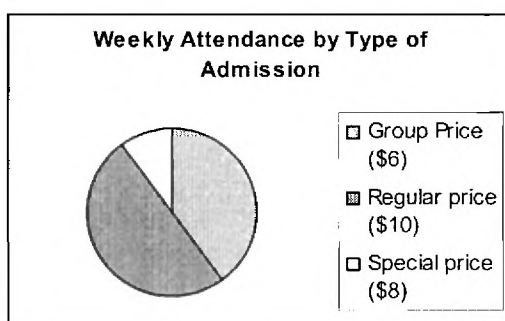
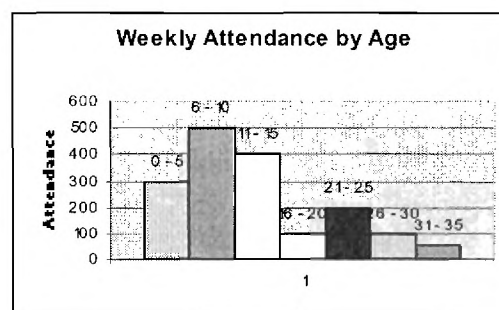
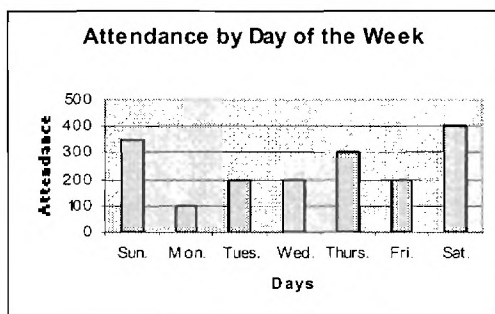
c.

Age group	10 - 19	20 - 29	30 - 39	40 - 49	50 - 59
Frequency	110	200	140	100	70

d.

Favorite ice cream	Vanilla	Chocolate	Strawberry	Cookie dough
Frequency	50	210	15	125

Please use the four graphs below to answer questions 10 – 21. The graphs represent weekly attendance and temperature at a water park in summer.



10. How many people attended the park on Wednesday?
11. On which day did fewer than 200 attend?
12. What was the total attendance for the week?
13. What was the mean daily attendance?
14. How many more teens (ages 11 – 20) attended than preschoolers (ages 0 – 5)?
15. Which age group had the highest attendance?
16. What was the median age group attending?
17. What was the approximate temperature on Tuesday?
18. What was the attendance on the hottest day?

19. Between which two days did the temperature change most rapidly?
20. If all the adults (ages 21 and older) paid the special price, how much did adults pay in admissions?
21. If everybody who attended on Wednesday paid the regular price, how much did the park receive in admissions on that day?

Unit 2

Test

Name \_\_\_\_\_

**Please do not write on this paper. Please work the problems on notebook paper and record your answers on the answer sheet provided.**

1. List all the factors of 48.
2. List the multiples of 6 between 25 and 65.
3. What is the least common multiple (LCM) of 8 and 12?
4. What is the greatest common factor (GCF) of 8 and 12?

5. Draw arrays to illustrate all factorizations of 36.
  
6. To enlarge a photograph from 3" x 5" to 12" x 20" what factor would you multiply by?
  
7. If you reduce a 4" x 6" picture by a factor of  $\frac{1}{2}$ , what will be the dimensions of the new picture?
  
8. I am thinking of a number that is a factor of 30. The number is an even multiple of 3. What is the number?
  
9. Meredith is baking cookies. Oatmeal cookies take 10 minutes and chocolate chip cookies require 8 minutes. If she loses no time in changing pans, what is the fewest number of batches of each type of cookie she can bake so that the last batch of each type comes out of the oven at the same time?
  
10. Write the prime factorization of 180.
  
11. What number is a factor of every number?

**12– 14. Below are arrays to represent the factorizations of 3 numbers.**

A				
---	--	--	--	--

B		

C			

12. Which array represents a square number?

13. Which array represents a prime number?

14. What type of number does array B represent?

15. Brandon won the School Box Sweepstakes. He received 288 pencils and 120 notebooks. He decided to share his winnings equally among his friends. Everyone will receive the same number of pencils and everyone will get the same number of notebooks. What is the greatest number of each item a friend would receive? How many friends does Brandon have?

**Introduction to next unit.**

Tommy found 2 quarters on the ground. Write as many ways as you can to represent the part of a dollar he found.

**Key Learnings:**

In math, letters can be used to represent numbers.  
There are conventions for using letters to represent numbers in mathematics.  
Algebraic expressions are used to represent relationships between numbers.  
Variables can be used to generalize patterns.  
Pictures and diagrams are helpful in recognizing relationships.  
Inverse operations are helpful in understanding and solving problems.

**Unit Essential Question:**

How can I use algebra to represent relationships and to solve problems?

**Concept:**

**Write and evaluate algebraic expressions**      **M6A3**

**Lesson Essential Questions:**

Why must I follow Order of Operations?  
How can I represent multiplication using variables?  
How do I evaluate algebraic expressions?

**Vocabulary:**

Order of operations    Exponent    Variable  
Evaluate    Substitute    Numerical  
expression    Algebraic expression

**Concept:**

**Solve one-step equations**

**M6A3**

**Lesson Essential Questions:**

How can I make sure that an equation stays balanced?  
How can I check my solution?

**Vocabulary:**

Equation    Solve,  
solution  
Inverse operations    Undo

**Concept:**

**Represent relationships between two variables**

**M6A2**

**Lesson Essential Questions:**

How can I use variables to describe a pattern?  
How are tables, graphs and equations related?

**Vocabulary:**

Generalize pattern    Table  
Graph    Data

**Key Learnings:**

- Proportional relationships involve multiplication.
- Double number lines, models and manipulatives are helpful in recognizing and describing proportional relationships.
- The equation  $y = kx$  describes a proportional relationship in which  $y$  varies directly as  $x$ .
- Proportional relationships can be represented using rules, tables and graphs.
- Many problems encountered in everyday life can be solved using proportions.

**Assessment:**

Warm-up activities, class work, summarizing activities, homework, quizzes, culminating task, test

**Instructional Resources:**

Tasks, word problems, exercises, tables, graphs, manipulatives, If you Hopped like a Frog, Jim and the Beanstalk, Roll Thunder, Hear my Cry, textbook 87

**Unit EQ: How do I recognize a proportional situation and how do I use proportions to solve problems?****Concept:**

In a proportional situation, variables are related by a constant factor.

M6A3a**Lesson EQs:**

- Why are equivalent fractions proportional?
- How do I identify the constant factor or constant of proportionality?

**Vocabulary:**

Constant of proportionality

**Concept:**

Proportional relationships can be represented using  $a/b=c/d$  and  $y=kx$  as well as with manipulatives, pictures, tables, and graphs.

M6A3a,b,d,e**Lesson EQs:**

- How can I use equations to represent proportional situations?
- Where is the constant of proportionality seen in a graph?
- How could I interpret the graph of  $y=kx$ ?
- How can I represent proportional relationships in different forms?

**Vocabulary:**

Ordered pair, origin, table of values,  $xy$  graph, rule

**Concept:**

Proportional reasoning can be used solve problems (including percent problems).

M6A3c,f,g M6A2**Lesson EQs:**

- How can I use algebra to model real world situations?
- How can I use proportions to solve problems?
- How do I solve and interpret algebraic equations?
- How can I solve proportions without using cross multiplication?

**Vocabulary:**

Ratio, proportion, proportional

Dear Parents,

Below are examples of what your student is learning in Grade 6, Unit 8. We hope you find this useful.

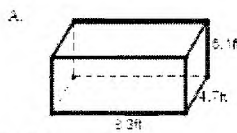
## SOLIDS

Students need to

- Name and compare properties of simple geometric solids.
- Estimate volumes and surface areas of basic solid figures.
- Apply formulas to compute volumes and surface areas of solids.
- Interpret and sketch various views of solids.
- Construct nets for prisms, cylinders, pyramids, and cones.

### Examples:

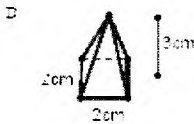
1. For each figure below, state its mathematical name, estimate its volume, and its surface area, then use formulas to compute volume and surface area.



Sample Response:

- A. This is a prism. Its estimated volume is  $8 \times 4 \times 6 = 192$  cu. cm, and its estimated surface area is  $2(40 + 48 + 32) = 160$  sq. cm. By formula, the volume is  $V = lwh = 8 \times 4 \times 6 = 192$  cu. cm. The surface area is  $S = 2(lw + wh + wl) = 2(32 + 24 + 48) = 160$  sq. cm.
- B. This is a cylinder. Its estimated volume is  $3.14 \times 4^2 \times 5 = 251.2$  cu. cm, and its estimated surface area is  $2(3.14 \times 4^2) + 3.14 \times 4 \times 5 = 150.72$  sq. cm. The volume is  $V = \pi r^2 h = 3.14 \times 4^2 \times 5 = 251.2$  cu. cm. The surface area is  $S = 2\pi r^2 + 2\pi rh = 2(3.14 \times 4^2) + 3.14 \times 4 \times 5 = 150.72$  sq. cm.

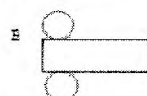
2. For each figure below, state its mathematical name, estimate its volume, then use formulas to compute volume.



Sample Response:

- C. This is a cone. Its estimated volume is  $28$  cu. cm. By formula,  $V = \frac{1}{3}\pi r^2 h = \frac{1}{3} \times 3.14 \times 3^2 \times 7 = 65.94$  cu. cm.
- D. This is a pyramid. Its estimated volume is  $4$  cu. cm. By formula,  $V = \frac{1}{3}Bh = \frac{1}{3} \times 2 \times 2 \times 3 = 4$  cu. cm.

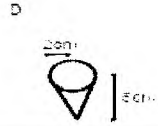
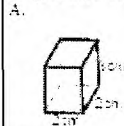
3. Draw nets for each of the figures above.



4. Sketch the figure, described.

- A. A right rectangular prism 3 cm x 3 cm x 2 cm.  
 B. A cylinder with diameter of 4 cm and height 5 cm.  
 C. A pyramid with square base 3 cm x 3 cm and height 4 cm.  
 D. A cone with radius 2 cm and height 6 cm.

Sample Responses:



## WAYS

### PARENTS CAN HELP

Here are some activities you and your student can do together:

- Cut open a cereal or cracker box to form a flat shape with 6 rectangles. Find the area of each rectangle and total the areas to find the box's surface area.
- Cut open an empty frozen orange juice can to make a flat shape with 2 circles (lids) and a rectangle. Find areas of each flat shape and add results to find the total surface area.
- Use a ruler to measure the diameters and heights of cans in the pantry. Calculate the volumes and surface areas of the cans using formulas.
- Use a ruler to measure the length, width, and height of boxes or box-shaped objects such as a desk, a TV, or a refrigerator. Calculate the volumes and surface areas of the boxes and other rectangular prisms.
- Ask your student to show you how to fold nets (patterns) to make solid figures.

Some links to try:

<http://www.mathworksheetsland.com/grade6/areaofcylinder.htm>  
<http://www.mathworksheetsland.com/grade6/areaofcone.htm>  
<http://www.mathworksheetsland.com/grade6/areaofpyramid.htm>

## VOCABULARY

**Base**—Flat circular part of a cone or polygonal region of a pyramid that does not intersect with other faces at the vertex.

**Bases**—two parallel and congruent regions of a prism or cylinder. Bases are circular in a cylinder and polygons in a prism.

**Cone**—a 3-D figure with one circular or elliptical base and one vertex.

**Cube**—a regular polyhedron whose 6 faces are congruent squares.

**Cylinder**—a 3-D object with two parallel, congruent circular bases.

**Edge**—the intersection of a pair of faces in a 3-dimensional object.

**Face**—one of the sides of a polyhedron.

**Net**—a 2-dimensional figure that, when folded, forms the surfaces of a 3-dimensional object.

**Polyhedron**—a 3-dimensional figure that has polygons as faces.

**Prism**—a polyhedron with two parallel, congruent faces called bases, and other faces that are parallelograms.

**Pyramid**—a polyhedron with one base and the same number of triangular faces as there are sides of the base.

**Surface Area**—total area of the 2-dimensional surfaces that make up a 3-dimensional surface.

**Volume**—the amount of space occupied by an object.



# GRADE 6 MATHEMATICS UNIT 6

Dear Parents

Below are examples of what your child is learning in Grade 6, Unit 6. We hope you find this useful.

## SYMMETRY

Students need to

- Determine and use lines of symmetry.
- Investigate and use rotational symmetry.
- Identify objects that have symmetrical properties.

Examples:

1. Do the figures below have lines of symmetry? If so, draw those lines.



Sample response

- a. There are 2 lines of symmetry. b. This figure does not have any lines of symmetry.



2. Do the figures above have rotational symmetry? If so, what is the degree of rotation?

Sample response

- a. This figure has rotational symmetry. If it is rotated  $180^\circ$  around its center point, it lines up with itself.  
b. This figure has rotational symmetry. If it is rotated  $72^\circ$ , the figure will look just like itself.

3. Sketch a symmetrical object from your home and describe its properties of symmetry.

Sample response

At right is my stove top.  
It has 2 lines of symmetry (dashed).  
And it has rotational symmetry.  
When it is rotated  $180^\circ$  around its center point, the stove top will look the same.



## WAYS PARENTS CAN HELP

Here are some activities you and your student can do together:

- Look for patterns in home furnishings (rugs, floor tiles, and wallpaper) that are symmetrical. Discuss the type of symmetry and identify the lines of symmetry and/or the degree of rotation.
- Write your name and your child's name in capital letters. Together, examine each letter and draw all lines of symmetry. Are there some letters that have both reflectional and rotational symmetry? Are there some letters that have neither type of symmetry?
- Look for symmetrical shapes in nature (leaves, trees, pinecones). Look for asymmetrical shapes as well. Can you find a purpose or advantage in symmetrical properties?
- Stand in front of your house. Is it symmetrical? If not, have your student make a sketch and add what might be needed to make the house have symmetry.
- Examine hubcaps on several cars. Do they have rotational symmetry? Why? Can you determine the degree of rotation?

## Links:

<http://www.mathworksheetsland.com/symmetry/symmetry.html>  
<http://www.mathworksheetsland.com/symmetry/symmetry.html>  
<http://www.mathworksheetsland.com/symmetry/symmetry.html>  
<http://www.mathworksheetsland.com/symmetry/symmetry.html>  
<http://www.mathworksheetsland.com/symmetry/symmetry.html>  
<http://www.mathworksheetsland.com/symmetry/symmetry.html>

## Text Reference

## VOCABULARY

**Asymmetrical:** Describes any figure that cannot be divided into two parts that are mirror images of each other. In other words, asymmetrical means "not symmetrical."

**Axis of Symmetry:** A line that a figure can be folded over so that one-half of the figure matches the other half perfectly; a line about which a figure is symmetrical.

**Line of Symmetry:** A line that divides a figure into two parts, each of which is a mirror image of the other.

**Line Symmetry:** Figures that match exactly when folded in half have line symmetry.

**Reflectional Symmetry:** A figure has reflectional symmetry if, after reflecting the figure over a line, the figure lines back up with itself.

**Rotation:** A transformation that turns a figure about a fixed point at a given angle and a given direction.

**Rotational Symmetry:** A figure has rotational symmetry if, after rotating it by an angle of 180 degrees or less about its center, the figure lines back up with itself.

**Symmetry:** The property of a figure or expression that allows for parts of it to be interchanged without forcing a change in the whole.

	EQ	Lesson	Comments/materials
1	Why do we need standard units?	<p><b>Opener:</b> Students measure their desk tops with their pencils. Compare results. Two students with different size feet measure the length of the room with their feet. Who is correct? Or Read <u>How Big is a Foot?</u></p> <p><b>Work:</b> New unit Task in unit 7 Framework</p> <p><b>Summarizer:</b> Journal entry-Why do we need standard units?</p> <p><b>HW:</b> 10 review problems</p>	
2	How can I measure lengths precisely?	<p><b>Opener:</b> Pretest</p> <p><b>Mini-Lesson:</b> how to measure with a ruler. Demonstrate at overhead with a transparent ruler. Show that 0 may not be at the end of the ruler. Explain the “little” lines between 0 and 1.</p> <p><b>Work:</b> 10 – 15 objects in the room that groups have to measure. Number objects. Start groups/partners at different numbers in room so there is not a log jam. Tell students level of precision for each measurement. (1/2, 1/4, 1/8, 1/16 inch). Make 5 measurements to the nearest inch or foot or yard.</p> <p><b>Unpack:</b> Go over concepts, vocabulary, dates of assessments, requirements for final task</p> <p><b>HW:</b> Read the ruler w/s.</p>	<ul style="list-style-type: none"> <li>• Pretest adjusted</li> <li>• Background on measuring</li> <li>• Read the Ruler ws</li> <li>• Coach book p 93 provides a concise lesson</li> </ul>
3	<p>When should I change units?</p> <p>If I use larger units, will I need more or fewer of them?</p> <p>When I combine measurements, what happens to the units?</p>	<p><b>Opener:</b> CRCT questions</p> <p><b>Mini-lesson:</b> Use pictures and proportions to convert from inches to feet to yard to miles.</p> <p><b>Work:</b> Convert the five measurements from yesterday that were “to the nearest inch, foot, yard” to other units.</p> <p><b>Mini-lesson:</b> Adding measures that are in different units</p> <p><b>Work:</b> Find perimeter of other objects measured yesterday.</p> <p><b>Summarizer:</b> partner task: Give room dimensions in inches and widths of doorframes. Ask how many inches of baseboard would be needed? How many feet of baseboard? How many yards of</p>	<ul style="list-style-type: none"> <li>• Opener day 3</li> <li>• Example for day 3</li> </ul>

		<b>Hw:</b> 10 textbook problems on adding mixed units	
4	Which units should I use?	<b>Opener:</b> Name 5 things that are usually measured in inches, 5 in feet, 2 in yards, and 2 miles. <b>Mini-lesson:</b> Subtracting, multiplying, and dividing measurements with different units. <b>Work:</b> <b>Summarizer:</b> Ticket out the door <b>HW:</b>	<ul style="list-style-type: none"> <li>• Ticket out the door</li> </ul>
5		<b>Opener:</b> CRCT questions <b>Mini-lesson:</b> Calculate perimeter, area of compound shapes and volume of prisms <b>Work:</b> from textbook <b>Summarizer:</b> <b>HW:</b> Measure a room at home and calculate the perimeter of the floor, the area of the floor, and the volume of the room.	<ul style="list-style-type: none"> <li>• Day 5 opener</li> </ul>
6	If I know the perimeter of a polygon, can I find its area?	<b>Opener:</b> Measure the dimensions of your math book to the nearest inch. Calculate the perimeter of its front cover, the area of its back cover and the volume of the book. <b>Work:</b> Area vs. Perimeter activity <b>Summarize:</b> Read <u>Spaghetti and Meatballs for All</u> and discuss the EQ. <b>HW:</b> Draw a net of the chosen room and label all measurements. Calculate the areas of the walls in the chosen room. Measure the doors and windows. Calculate their area and subtract from the areas of the walls.	<ul style="list-style-type: none"> <li>• Area vs. perimeter activity form John van De Walle</li> </ul>
7	How does the world measure?	<b>Opener:</b> Quick review <b>Work :</b> quiz 1 <b>Mini-lesson:</b> metric units, measuring, and converting units in metric system <b>Work:</b> Practice from textbook <b>HW:</b> 10 problems from text.	<ul style="list-style-type: none"> <li>• Quiz 1 (measuring, adding/subtracting measures, perimeter, area, volume, converting units of length)</li> </ul>
8	How can I use proportions to solve problems?	<b>Opener:</b> CRCT questions <b>Mini-lesson:</b> Read <u>If I could Hop Like a Frog</u> ; do calculations based on the book—use proportions not conversion factors! <b>Work:</b> <b>Summarizer:</b> <b>HW:</b> Calculate the amount of flooring and	<ul style="list-style-type: none"> <li>• Frog ws</li> <li>• Opener day 8</li> <li>• Chart showing 1 gal of paint covers __ square feet 1 roll of wallpaper covers __ square yards</li> </ul>

		paint/wallpaper needed for the chosen room.	Size and number of tiles to a box. How is hardwood flooring sold?
9	How do I name geometric figures?  How can I tell if 2 figures are similar?	<b>Opener:</b> Cougar pictures <b>Mini-lesson:</b> How to name a line, a line segment, an angle, a figure. <b>Work:</b> Discovering the properties of Similar Figures <b>Summarizer:</b> <b>HW:</b>	<ul style="list-style-type: none"> <li>• Cougar pictures</li> <li>• Discovery activity</li> </ul>
10	How can I use properties of similar figures to solve problems? When are similar figures congruent?	<b>Opener:</b> CRCT questions <b>Work:</b> Similar figures task from the Framework, unit 7 <b>Summarizer:</b> <b>HW:</b>	
11	Who uses scale drawings?	<b>Opener:</b> video clip on Hot Wheels <b>Mini-lesson:</b> How to make a scale drawing <b>Work:</b> creating scale drawings <b>Summarizer :</b> <b>HW:</b> Draw the chosen room to scale so that the drawing fits on one piece of 8 ½"x11" paper. Show calculations on a separate sheet of paper.	<ul style="list-style-type: none"> <li>• Website for the video clip and related worksheet</li> </ul>
12	Does scale factor affect the angles in a drawing?	<b>Opener:</b> A common Misconception – task from the unit 7 Framework <b>Work:</b> Quiz 2 <b>HW:</b> Finish work on culminating task.	<ul style="list-style-type: none"> <li>• Quiz 2 ( similar figures, proportions, scale factor, drawings)</li> </ul>

## Links for Unit 10 probability

<http://mathforum.org/mathtools/search/index.html?execute=search&database=catalog&keywords=probability>

<http://www.shodor.org/interactivate/activities/index.html#pro>

<http://mathforum.org/workshops/usi/dataproject/usi.midlessons.html>

<http://www.stats.gla.ac.uk/steps/glossary/probability.html#probability>

<http://www.glencoe.com/sec/math/studytools/cgi-bin/msgQuiz.php4?isbn=1-57039-850-X&chapter=10&lesson=1>

<http://www.cyberbee.com/probability/mathprob.html> task with rubric links to other resources

<http://regentsprep.org/Regents/math/probab/PracEmp.htm> a 6 question quiz with explanations Real cute!

<http://math.about.com/od/probability/> various links for different levels of interest in the topic of probability.

<http://www.bbc.co.uk/education/mathsfile/shockwave/games/fish.html> great practice with equivalent fractions especially levels 2 and 3

## Links for proportional reasoning.

<http://www.nde.state.nc.us/NMSI/mathvantage/proportional/lesson.html>  
background and lists of activities to determine if data area proportional

[http://education.umn.edu/rationalnumberproject/88\\_8.html](http://education.umn.edu/rationalnumberproject/88_8.html)  
research

[http://www.edcollege.ucf.edu/mspd/mod\\_modules/measurement.html](http://www.edcollege.ucf.edu/mspd/mod_modules/measurement.html)  
teacher background information

<http://illuminations.nctm.org/LessonDetail.aspx?id=L572>  
an activity showing that the length and width of a rectangle stay in the same proportion no matter what units of measure are used.

[http://www.aaaknow.com/pct68\\_x3.htm](http://www.aaaknow.com/pct68_x3.htm)  
practice with discounts

<http://www.figurethis.org/challenges/c77/challenge.htm>  
percent problem

<http://www.figurethis.org/challenges/c47/challenge.htm>  
proportional reasoning problem

<http://www.figurethis.org/challenges/c25/challenge.htm>  
proportional reasoning problem

<http://www.math.com/school/subject1/lessons/S1U2L2GL.html>  
tutorial

[http://cne.gmu.edu/modules/dau/algebra/fractions/frac5\\_frm.html](http://cne.gmu.edu/modules/dau/algebra/fractions/frac5_frm.html)  
tutorial

<http://www.edhelper.com/ratios.htm>  
worksheets --- must be a member to print

<http://www.purplemath.com/modules/ratio3.htm>  
instructions, worked problems ---uses integers, square roots variable expressions

<http://www.learner.org/channel/courses/learningmath/algebra/session4/index.html>  
professional learning on proportional reasoning. Super!

<http://www.lceric.lsu.edu/bgbb/7/ecep/math/q/q.htm>  
problems (not exercises) with ratios and proportions

<http://www.shodor.org/interactivate/activities/pcoords/index.html>  
plotting point in first quadrant

<http://www.shodor.org/interactivate/activities/pmaze/index.html>  
plotting in first quadrant game

## Appendix 2 Results of Focus Group and Teacher Survey

### **Paulding County Focus Group Report**

#### Executive Summary

The Paulding County MSP teacher focus group was designed to understand what was transferred from instruction/coaching into teaching practice, whether teacher pedagogical knowledge has improved as a result of Marsha Shrago's involvement, and whether student achievement has improved as a result of the MSP interventions.

The teachers participating in the focus group indicate that Marsha was valuable in transitioning them from Saxon math to the GPS curriculum and that she provided needed scaffolding and just-in-time support. Pedagogically, teachers commented that they prepare for their classes, motivate students and occasionally sequence their instruction differently as a result of the MSP interventions. The teachers mentioned that they are not certain that student achievement has improved as a result of the interventions because the sixth grade math CRCT scores have not been returned. However, they note a number of leading indicators that lead them to believe student achievement has improved: increased student motivation, a higher level of student engagement, peer collaboration, and school-to-school consistency. The teacher also expressed concern that students continue to struggle.

Based on this information, I recommend

- Fostering vertical collaboration among sixth and seventh grade teachers.
- Sustaining a high level of collaboration and teacher-teacher accountability among sixth grade teachers next year.
- Continuing the spirit of professional learning. I infer from the comments that sixth grade teachers are comfortable using concept maps, but they may need more practice developing them. Other teachers will begin using concept maps. Two levels of professional learning are recommended: 1) Offer sixth grade teachers an opportunity to improve their ability to unpack standards by developing concept maps with peers. 2) Use sixth grade teachers to provide professional learning to other grade-level teachers on using concept maps.
- Continuing conversations among sixth grade teachers on strategies to reach struggling students with a focus on putting structures in place to assist these students.

## Paulding County Focus Group Report

On May 4<sup>th</sup>, 2006, Tom McKlin met with approximately 10 sixth grade math teachers from Paulding County to determine the impact that the FY06 math portion of Paulding's MSP grant. The purpose of this portion of the grant was to equip and support sixth grade math teachers with their implementation of the Georgia Performance Standards (GPS). In Paulding, implementing the GPS required removing their old curriculum, Saxon Math, and teaching approach, direct instruction. Marsha Shrago was contracted to serve as a facilitator and mentor to Paulding's sixth grade math teachers to ensure the transition.

The focus group was designed to answer the following evaluation questions:

1. What was transferred from instruction/coaching to teaching practice?
2. Has teachers' pedagogical knowledge improved as a result of Marsha's involvement with Paulding teachers?
3. Has student achievement improved as a result of the professional learning communities, Marsha's support, and model teaching?

The following is a response to each evaluation question emanating from the focus group. It is followed by a set of recommendations.

### 1. What was transferred from instruction/coaching to teaching practice?

Primarily, teachers commented that Marsha provided a way to **transition** from the way Paulding sixth grade math teachers currently teach math to teaching to the Georgia Performance Standards for sixth grade math.

*About 2 months into it, we saw that we really needed her [Marsha] because without that direction from her it made the transition very difficult from teaching it to preparing for the next one to teaching the next one. She was a very good bridge.*

*I thought it was a nice, refreshing, open learning experience every week that she came into our meetings because we knew that we were walking away with some value-added information that helped us teach what we should be teaching.*

Each week, Marsha brought a **framework, materials, and suggestions** to sixth grade math teachers and facilitated discussion around the transition to GPS. Many teachers commented that Marsha assisted them in putting the myriad pieces together.

*We used her to help develop us as well as provide materials to provide the students... She'd spend at least two hours helping us get it. We took her suggestions and modified or added to or sometimes followed exactly as she suggested. She would sit there and coach, sometimes she pushed us if we were behind, and sometimes she'd tell us to slow down. We consider her invaluable.*



*We could ask her, “what do I need to do first,” and she’d give us a suggested daily plan with openers, essential questions, she’d set up the entire framework for us. But I didn’t feel obligated to use them.*

*We know we have to teach it, but we don’t always have time to put it all together. She’s in the background putting it all together.*

*Without her, we would have never caught up. She’d give it [teaching material] to us, and we’d throw it in a folder until the time came.*

Marsha provided **professional learning** to help address **pedagogical concerns**. Teacher comments indicated that they were uncomfortable not only with transitioning to the GPS but with adopting a new approach to teaching, facilitating learning versus delivering instruction.

*We used her to help develop us as well as provide materials to provide the students. She never gave us anything without making sure we knew it. She’d spend at least two hours helping us get it.*

*When we’d go into a new unit, and I had no idea what to do, Marsha would come with gifts, and I felt the weight come off me. I know the material, but I wasn’t sure what, how, and how long to present it. What should come first? She was there to give me all that information.*

Marsha was also able to provide **real examples** to teachers from the perspective of a classroom teacher.

*We said, “Would you give us an example of what a sixth grader according to this standard is expected to know.” We were thinking, “How in-depth does this need to be?” She gave us an example, and we took it from there.*

Many teachers mentioned that they are **collaborating** much more frequently and meaningfully with other grade- and subject-level teachers, and that they are using email to communicate with each other about their work.

*It became a very positive experience with Marsha – we either get together before school starts and talk about our work: “what did you do differently than I did?” We communicate. If we can see communication as a positive experience, we can transfer that to the students to create an atmosphere where they want to work together.*

*It’s great to be able to collaborate with my peers, and we do meet almost every day and say, “what are YOU doing today?”*

*I taught in [another system] previously – I never sat down with all the teachers in my subject area as much as I have in Paulding. Before, if there was no other*

*math teacher on your grade level who could fill in where you're weak – you have no place to go. Now, I can talk to East because they know what to do. The email shows where we're all struggling.*

2. Has teachers' pedagogical knowledge improved as a result of Marsha's involvement with Paulding teachers?

Teacher knowledge may best be understood from teachers describing what they do in their classrooms or in preparation for their classes that they did not do before and that they can attribute to their participation in the MSP program. The focus group teachers describe that they prepare for their classes, motivate students differently, and sequence mathematical concepts differently

Most, possibly all, teachers agreed that the way they **prepare** for their classes has changed. This change can also be seen in the amount and quality of teacher collaboration now happening.

*One thing Marsha's good at, and I think teachers get in the habit of assigning things without doing it ourselves, the first thing she did was take us to the culminating task and had us take an hour out to figure that out first. She made sure we understood that.*

*The other strategy she made sure we were on top of is creating rubrics.*

**Student motivation** was improved as a result of posting exemplary work, doing gallery walks, and having students use a peer evaluation form to assess each other

*I now communicate to the students that exemplary work gets posted on the board...if they don't meet the standard, it's not going anywhere. I'm more aware that there's a next step in showcasing student work so they can see the work. That comes a lot from Marsha and the school requiring us to do that.*

*We do gallery walks and we didn't do that before. The students go through and say what they find what's good about a work and make comments on the work.*

*Students use peer evaluation forms, and they grade each other's work.*

Teachers also mentioned that they **sequence** some material differently as a result of Marsha's involvement.

*For example in the fraction unit, she suggested that we teach multiplying fractions first. I had never thought to do that first – I've been teaching math a long time. She suggested things like that. It was a good thing. Adding and subtracting fractions is harder. Once they get multiplying, you can take them into*

*dividing, then adding, then the worst which is subtracting. It enlightened me to a new secret that really worked.*

3. Has student achievement improved as a result of the professional learning communities, Marsha's support, and model teaching?

Teachers mentioned that they were not sure if student achievement has improved, and they were anticipating CRCT results. They were, however, able to point to examples that lead them to believe that student achievement has improved as a result of their work. Teachers mentioned that students appear to be thinking more about their learning, collaborating, and approaching math more maturely. They also noted that transient students experience consistency from one school to the next, that they are more motivated as teachers, that they continue to struggle over repeating concepts, and that they remain concerned about struggling students.

One teacher mentioned that her students appear to **think** more.

*I have never felt as good about the challenge my children have had. They think more. Before, we'd give them a problem, they'd work it, and we'd grade it. They now work in groups. They're not overwhelmed. I appreciate the fact that they're challenged more. Now, they have to think.*

*Students realize they have to do more thinking, applying knowledge in real life situation, something they can use again and again.*

*We did a lot of assessment/mini assessments and pre-tests/post-tests with out students. We could see growth with our students.*

This teacher mentioned **peer collaboration** among students; others expanded on that to incorporate peer collaboration among teachers:

*-The [student] peer helps also in encouraging – they're asking me whether another student needs some help, and I say to make sure they're on the right track. I only have two hands and two eyes. They [peers] are helpful.*

*-We [teachers] have learned to collaborate and share – before I'd plan for my students in my class. We now work well – we sit down on a daily basis.*

*-It became a very positive experience with Marsha – we either get together before school starts and talk about our work – what did you do differently than I did? We communicate. If we can see communication as a positive experience, we can transfer that to the students to create an atmosphere where they want to work together.*

The teachers mentioned that the students have grown more **mature** as a result of collaborating with peers and being required to be in charge of their own learning:

*-I have seen growth. Students speak on their own, analyze things...they are less dependent on teachers to just give them an answer, they are getting there. I think next year will really tell the story.*

*-Their 7<sup>th</sup> grade teachers will see the difference.*

*- They [7<sup>th</sup> grade teachers] have to see a change in way students work together, in collaborative groups, pairs, you see them at a more mature level working together. They know they have to think, they have to look at what's required of them, and they have to put it on paper. It's not my job as a teacher to tell them whether it's right or wrong right there. They're mature enough to know and not get mad at the teacher that I didn't give them the answer. Now they have to go back to the [work] and expand it, go back to their own resources, to another student...they've matured in that respect. They know there's more out there than the teacher.*

Students that transfer from within the system experience content **consistency** in the transition:

*-Kids that come into our school aren't coming into something different – that's a big thing. It's a problem if they're coming in from a different district. I had 8 new kids come in, and the ones that came in from Paulding were pretty much where I was.*

*-that's a big problem for the kids.*

Many of the teachers agreed that the students appear more **motivated**:

*-We had Saxon prior to this year. You do one lesson a day, give them a sheet with 30 problems on it, and they start on it in class and finish it for homework. You had a fixed routine whereas with GPS I see a lot more enthusiasm – they come in and say, "what are we going to do today?"*

*-It's a surprise.*

*-They even ask me, "are we going to have fun today?"*

*-Yeah...I've never had that question before.*

Many of the teachers were concerned about **repetition** (looping back over content), and based on their comments it appeared that they were struggling to make sure that repetition remains part of their teaching practice.

*We are adding in the old to the new each time we review or have a test. Its the same as Saxon but more specific about what you want to specifically review. Some of the lessons were hard to cram together.*

*You can't throw out the repetition; the students really needed some of it. You have to keep some of the old and put in the new.*

Some teachers mentioned that **students continue to struggle** with certain math concepts.

*We're struggling with fractions, decimals, percents, ratios; retention is poor even though it was taught for at least a semester*

*When you are doing a unit the students seem to be holding onto the material, but a few units later, students do not remember the material taught in previous units*

*There were times, I believe, we moved through the unit too fast before they grasped the concepts well enough to move to the next step in the learning process. It forces it you to "double back" or incorporate that concept in every unit you go into. They need more practice time in the unit to be more proficient.*

*Even with GPS, I agree that it's great, but has the same problems as Saxon, because all students learn differently and not all students will "get it." Everyone is individual.*

Recommendations and observations:

- Teachers mentioned that they want to see how their students do in 7<sup>th</sup> grade – they want to hear from the 7<sup>th</sup> grade teachers that their students are well-prepared. It seems like the 6<sup>th</sup> grade teachers perceive that the 7<sup>th</sup> grade teachers will hold them accountable, yet they appear to welcome that accountability and may perceive that it's more meaningful that the accountability emanating from CRCT performance. I recommend creating an event or structure to allow the vertical communication among sixth and seventh grade teachers to take place.
- Focus on sustaining the collaboration next year – it will be easy for teachers to settle back into old habits of closing the door and teaching. What actions are in place to ensure teacher collaboration and continued accountability?
- Now that the sixth grade teachers understand how to apply the standards and concept maps, the next stage of school-level development may be for them to lead professional learning in their own schools. This helps to solidify the sixth grade teachers' understanding of concept maps and unpacking standards and begins school-wide adoption. The teacher comments above indicate that the teachers are comfortable using concept maps, but they are not comfortable doing the work to create them.
- Morale and motivation among sixth grade math teachers appears to have improved as a result of this year's work. Still, they note that some of their students continue to struggle. What structures can be put in place to enable teachers to confidently support the struggling students?

## Frequency Analysis

**Table:** PAULDINGTEACHERS

**Filter:** None

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (1 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** I openly shared my classroom activities and results to other grade- and subject-level teachers.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly disagree	2	15.4%	15.4%	15.4%
2- Disagree	1	7.7%	7.7%	7.7%
3- Agree	4	30.8%	30.8%	30.8%
4- Strongly agree	6	46.2%	46.2%	46.2%
Not Answered	0	N/A	0.0%	0.0%
Not Asked	0	N/A	N/A	0.0%
<b>Total</b>	<b>13</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 3.08

Sum 40

Standard Deviation 1.12

Median 4

Mode 4

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (2 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** Other grade- and subject-level teachers openly shared their classroom activities and results with me.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly disagree	2	15.4%	15.4%	15.4%
2- Disagree	2	15.4%	15.4%	15.4%
3- Agree	7	53.8%	53.8%	53.8%
4- Strongly agree	2	15.4%	15.4%	15.4%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 2.69

Sum 35

Standard Deviation 0.95

Median 3

Mode 3

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (3 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** My fellow grade and subject-level teachers shared lesson plans with me.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly

disagree 2 15.4% 15.4% 15.4%

2- Disagree 0 0.0% 0.0% 0.0%

3- Agree 2 15.4% 15.4% 15.4%

4- Strongly

agree 9 69.2% 69.2% 69.2%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 3.38

Sum 44

Standard Deviation 1.12

Median 4

Mode 4

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (4 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** My fellow grade- and subject-level teachers shared examples of student work.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly disagree 2 15.4% 15.4% 15.4%  
 2- Disagree 0 0.0% 0.0% 0.0%  
 3- Agree 6 46.2% 46.2% 46.2%  
 4- Strongly agree 5 38.5% 38.5% 38.5%  
 Not Answered 0 N/A 0.0% 0.0%  
 Not Asked 0 N/A N/A 0.0%  
**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00  
 Maximum Value 4.00  
 Average 3.08  
 Sum 40  
 Standard Deviation 1.04  
 Median 3  
 Mode 3

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (5 of 34)6/6/2006 7:57:24 AM  
<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** My fellow grade- and subject-level teachers shared lessons learned.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly disagree 2 15.4% 15.4% 15.4%  
 2- Disagree 0 0.0% 0.0% 0.0%  
 3- Agree 2 15.4% 15.4% 15.4%  
 4- Strongly agree 9 69.2% 69.2% 69.2%  
 Not Answered 0 N/A 0.0% 0.0%  
 Not Asked 0 N/A N/A 0.0%  
**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00  
 Maximum Value 4.00  
 Average 3.38  
 Sum 44  
 Standard Deviation 1.12  
 Median 4  
 Mode 4

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (6 of 34)6/6/2006 7:57:24 AM  
<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** I practiced with the new content (e.g. by working examples or quizzes with other teachers)



**Count % Sample****Answered****% Sample****Asked****% Sample****Total**

1- Strongly

disagree 2 15.4% 15.4% 15.4%

2- Disagree 0 0.0% 0.0% 0.0%

3- Agree 5 38.5% 38.5% 38.5%

4- Strongly

agree 6 46.2% 46.2% 46.2%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 3.15

Sum 41

Standard Deviation 1.07

Median 4

Mode 4

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (7 of 34)6/6/2006 7:57:24 AM<http://surveys.galeaders.org/scripts/pdcportal6.exe>**Question:****Topic:** My grade- and subject-level teachers and I practiced new teaching strategies (e.g.

differentiating, scaffolding, discovery, tasks, manipulative)

**Count % Sample****Answered****% Sample****Asked****% Sample****Total**

1- Strongly

disagree 2 15.4% 15.4% 15.4%

2- Disagree 0 0.0% 0.0% 0.0%

3- Agree 4 30.8% 30.8% 30.8%

4- Strongly

agree 7 53.8% 53.8% 53.8%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 3.23

Sum 42

Standard Deviation 1.09

Median 4

Mode 4

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (8 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** I observed other classrooms.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly

disagree 3 23.1% 23.1% 23.1%

2- Disagree 7 53.8% 53.8% 53.8%

3- Agree 3 23.1% 23.1% 23.1%

4- Strongly

agree 0 0.0% 0.0% 0.0%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 3.00

Average 2.00

Sum 26

Standard Deviation 0.71

Median 2

Mode 2

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (9 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** Other teachers observed my classroom.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly

disagree 3 23.1% 23.1% 23.1%

2- Disagree 2 15.4% 15.4% 15.4%

3- Agree 7 53.8% 53.8% 53.8%

4- Strongly

agree 1 7.7% 7.7% 7.7%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 2.46

Sum 32

Standard Deviation 0.97

Median 3

Mode 3

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (10 of 34)6/6/2006 7:57:24 AM<http://surveys.galeaders.org/scripts/pdcportal6.exe>**Question:****Topic:** My grade- and subject-level teachers and I celebrate success.**Count % Sample****Answered****% Sample****Asked****% Sample****Total**

1- Strongly

disagree 2 15.4% 15.4% 15.4%

2- Disagree 0 0.0% 0.0% 0.0%

3- Agree 7 53.8% 53.8% 53.8%

4- Strongly

agree 4 30.8% 30.8% 30.8%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 3.00

Sum 39

Standard Deviation 1.00

Median 3

Mode 3

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (11 of 34)6/6/2006 7:57:24 AM<http://surveys.galeaders.org/scripts/pdcportal6.exe>**Question:****Topic:** I openly shared my classroom activities and results to other grade- and subject-level teachers.**Count % Sample****Answered****% Sample****Asked****% Sample****Total**

Daily 2 15.4% 15.4% 15.4%

Weekly 8 61.5% 61.5% 61.5%

Every other

week 0 0.0% 0.0% 0.0%  
 Monthly 3 23.1% 23.1% 23.1%  
 Once or twice  
 this year 0 0.0% 0.0% 0.0%  
 Not at all 0 0.0% 0.0% 0.0%  
 Not  
 Answered 0 N/A 0.0% 0.0%  
 Not Asked 0 N/A N/A 0.0%  
**Total** 13 100% 100% 100%

#### Statistics

Minimum Value 1.00  
 Maximum Value 4.00  
 Average 2.31  
 Sum 30  
 Standard Deviation 1.03  
 Median 2  
 Mode 2

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (12 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (13 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

#### Question:

**Topic:** Other grade- and subject-level teachers openly shared their classroom activities and results with me.

#### Count % Sample

##### Answered

##### % Sample

##### Asked

##### % Sample

##### Total

Daily 2 15.4% 15.4% 15.4%  
 Weekly 5 38.5% 38.5% 38.5%  
 Every other  
 week 1 7.7% 7.7% 7.7%  
 Monthly 3 23.1% 23.1% 23.1%  
 Once or twice  
 this year 1 7.7% 7.7% 7.7%  
 Not at all 1 7.7% 7.7% 7.7%  
 Not  
 Answered 0 N/A 0.0% 0.0%  
 Not Asked 0 N/A N/A 0.0%  
**Total** 13 100% 100% 100%

#### Statistics

Minimum Value 1.00  
 Maximum Value 6.00  
 Average 2.92  
 Sum 38  
 Standard Deviation 1.55  
 Median 3  
 Mode 2

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (14 of 34)6/6/2006 7:57:24 AM  
<http://surveys.galeaders.org/scripts/pdcportal6.exe>  
<http://surveys.galeaders.org/scripts/pdcportal6.exe> (15 of 34)6/6/2006 7:57:24 AM  
<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** My fellow grade and subject-level teachers shared lesson plans with me.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

Daily 8 61.5% 61.5% 61.5%

Weekly 4 30.8% 30.8% 30.8%

Every other

week 1 7.7% 7.7% 7.7%

Monthly 0 0.0% 0.0% 0.0%

Once or twice

this year 0 0.0% 0.0% 0.0%

Not at all 0 0.0% 0.0% 0.0%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 3.00

Average 1.46

Sum 19

Standard Deviation 0.66

Median 1

Mode 1

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (16 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (17 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** My fellow grade- and subject-level teachers shared examples of student work.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

Daily 1 7.7% 7.7% 7.7%

Weekly 10 76.9% 76.9% 76.9%

Every other

week 1 7.7% 7.7% 7.7%

Monthly 1 7.7% 7.7% 7.7%

Once or twice

this year 0 0.0% 0.0% 0.0%

Not at all 0 0.0% 0.0% 0.0%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 2.15

Sum 28

Standard Deviation 0.69

Median 2

Mode 2

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (18 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (19 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** My fellow grade- and subject-level teachers shared lessons learned.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

Daily 5 38.5% 38.5% 38.5%

Weekly 7 53.8% 53.8% 53.8%

Every other

week 0 0.0% 0.0% 0.0%

Monthly 1 7.7% 7.7% 7.7%

Once or twice

this year 0 0.0% 0.0% 0.0%

Not at all 0 0.0% 0.0% 0.0%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 1.77

Sum 23

Standard Deviation 0.83

Median 2

Mode 2

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (20 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (21 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** I practiced with the new content (e.g. by working examples or quizzes with other teachers)

**Count % Sample****Answered****% Sample****Asked****% Sample****Total**

Daily 7 53.8% 53.8% 53.8%  
Weekly 5 38.5% 38.5% 38.5%  
Every other  
week 0 0.0% 0.0% 0.0%  
Monthly 1 7.7% 7.7% 7.7%  
Once or twice  
this year 0 0.0% 0.0% 0.0%  
Not at all 0 0.0% 0.0% 0.0%  
Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 1.62

Sum 21

Standard Deviation 0.87

Median 2

Mode 1

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (22 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (23 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** My grade- and subject-level teachers and I practiced new teaching strategies (e.g. differentiating, scaffolding, discovery, tasks, manipulative)

**Count % Sample****Answered****% Sample****Asked****% Sample****Total**

Daily 5 38.5% 38.5% 38.5%  
Weekly 7 53.8% 53.8% 53.8%  
Every other  
week 1 7.7% 7.7% 7.7%  
Monthly 0 0.0% 0.0% 0.0%  
Once or twice  
this year 0 0.0% 0.0% 0.0%  
Not at all 0 0.0% 0.0% 0.0%  
Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 3.00

Average 1.69

Sum 22

Standard Deviation 0.63

Median 2

Mode 2

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (24 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (25 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** I observed other classrooms.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

Daily 0 0.0% 0.0% 0.0%

Weekly 1 7.7% 7.7% 7.7%

Every other

week 1 7.7% 7.7% 7.7%

Monthly 0 0.0% 0.0% 0.0%

Once or twice

this year 3 23.1% 23.1% 23.1%

Not at all 8 61.5% 61.5% 61.5%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 2.00

Maximum Value 6.00

Average 5.23

Sum 68

Standard Deviation 1.30

Median 6

Mode 6

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (26 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (27 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** Other teachers observed my classroom.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**



**Total**

Daily 0 0.0% 0.0% 0.0%  
Weekly 0 0.0% 0.0% 0.0%  
Every other  
week 1 7.7% 7.7% 7.7%  
Monthly 1 7.7% 7.7% 7.7%  
Once or twice  
this year 6 46.2% 46.2% 46.2%  
Not at all 5 38.5% 38.5% 38.5%  
Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 3.00

Maximum Value 6.00

Average 5.15

Sum 67

Standard Deviation 0.90

Median 5

Mode 5

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (28 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (29 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:**

**Topic:** My grade- and subject-level teachers and I celebrate success.

**Count % Sample****Answered****% Sample****Asked****% Sample****Total**

Daily 5 38.5% 38.5% 38.5%  
Weekly 6 46.2% 46.2% 46.2%  
Every other  
week 0 0.0% 0.0% 0.0%  
Monthly 2 15.4% 15.4% 15.4%  
Once or twice  
this year 0 0.0% 0.0% 0.0%  
Not at all 0 0.0% 0.0% 0.0%  
Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 1.92

Sum 25

Standard Deviation 1.04

Median 2

Mode 2

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (30 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (31 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:** I extended my understanding of unpacking standards.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly

disagree 1 7.7% 7.7% 7.7%

2 0 0.0% 0.0% 0.0%

3 5 38.5% 38.5% 38.5%

4- Strongly

agree 7 53.8% 53.8% 53.8%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 3.38

Sum 44

Standard Deviation 0.87

Median 4

Mode 4

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (32 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:** I identified my needs as a teacher adopting the new standards.

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly

disagree 1 7.7% 7.7% 7.7%

2 0 0.0% 0.0% 0.0%

3 3 23.1% 23.1% 23.1%

4- Strongly

agree 9 69.2% 69.2% 69.2%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 3.54

Sum 46

Standard Deviation 0.88

Median 4

Mode 4

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (33 of 34)6/6/2006 7:57:24 AM

<http://surveys.galeaders.org/scripts/pdcportal6.exe>

**Question:** I am confident in my ability to teach the new Georgia Performance Standards

**Count % Sample**

**Answered**

**% Sample**

**Asked**

**% Sample**

**Total**

1- Strongly

disagree 1 7.7% 7.7% 7.7%

2 0 0.0% 0.0% 0.0%

3 7 53.8% 53.8% 53.8%

4- Strongly

agree 5 38.5% 38.5% 38.5%

Not

Answered 0 N/A 0.0% 0.0%

Not Asked 0 N/A N/A 0.0%

**Total** 13 100% 100% 100%

**Statistics**

Minimum Value 1.00

Maximum Value 4.00

Average 3.23

Sum 42

Standard Deviation 0.83

Median 3

Mode 3

<http://surveys.galeaders.org/scripts/pdcportal6.exe> (34 of 34)6/6/2006 7:57:24 AM